

## FACSIMILE COVER SHEET

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**EXAMINER:** Kailash C. Srivastava**FROM:** David R. Saliwanchik**COMPANY:** U.S. Patent Office  
Art Unit 1657**DATE:** September 15, 2010**FAX NO.:** (571) 273-0923**NO. OF PAGES**  
**(INCLUDING COVER SHEET):** 5**SUBJECT/MESSAGE:**Re: Serial No. 10/520,221  
Attorney Docket No. GJE.7140

Dear Examiner Srivastava:

Attached is an Informal Communication regarding the above-referenced application.

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## INFORMAL COMMUNICATION

Examining Group

Patent Application

Docket No. GJE.7140

## IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Examiner : Kailash C. Srivastava  
Art Unit : 1657  
Applicants : Christopher Robin Lowe *et al.*  
Serial No. : 10/520,221  
Filed : January 4, 2005  
Confirm. No. : 2605  
For : Detection of Microorganisms with Holographic Sensors

Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

INFORMAL COMMUNICATION

Dear Examiner Srivastava:

In anticipation of our telephone interview today at 10:00, following are claim amendments that we would like to propose.

1 (currently amended). A method for ~~the identification of a cell, or the detection of a product of~~ cell metabolism, cell growth, and/or spore germination, wherein said method comprises ~~immobilising the cell on an antibody in a device also containing a sensor, and introducing a growth medium using an antibody to immobilize a cell or spore in a device that also contains a sensor and a growth medium,~~ wherein the sensor is a holographic sensor comprising an analyte-sensitive matrix having an optical transducing structure disposed throughout its volume, wherein the sensor is sensitive to a product of the ~~cell's metabolism, growth, and/or germination of the cell or spore;~~ and detecting any change in an optical characteristic of the sensor.

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2 (previously presented). The method according to claim 1, wherein the cell is immobilised on an antibody that is attached to a magnetic particle.

3 (cancelled).

4 (previously presented). The method according to claim 1, wherein the cell is a bacterial cell.

5 (previously presented). The method according to claim 4, wherein the bacterium is selected from the group consisting of *Bacillus anthracis*, *Bacillus globigii*, *Bacillus subtilis*, *Bacillus megaterium*, *Legionella pneumophila*, *Francisella tularensis*, *Yersinia pestis*, *Salmonella* spp., *E.coli* spp., *Listeria* spp., *Bacillus thuringiensis* and *Campylobacter* spp.

6-7 (canceled).

8 (currently amended). A device suitable for the detection of a product of cell metabolism, cell growth, and/or spore germination, the detection of a cell, by a method comprising immobilising the cell in a device that also contains wherein said device comprises a chamber in which a cell or spore can be immobilized, wherein said chamber has a sensor, an antibody for immobilizing a cell or spore, an inlet for a sample, and introducing a growth medium,

wherein the sensor is a holographic sensor comprising an analyte-sensitive matrix having an optical transducing structure disposed throughout its volume,

wherein the sensor is sensitive to a product of the cell's cell metabolism, cell growth, and/or spore germination; and detecting any change in an optical characteristic of the sensor that is caused by the cell's metabolism, growth, and/or germination;

wherein said device comprises a chamber including a sensor, an antibody, and a growth medium, and an inlet for a sample.

9 (canceled).

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10 (previously presented). The device according to claim 8, wherein the antibody is immobilised on a wall of the chamber.

11 (currently amended). The device according to claim 8, ~~which additionally comprises wherein~~ the antibody is immobilised on a magnetic particle, and ~~the said the device further comprises a means can provide for providing~~ a magnetic field.

12 (previously presented). The device according to claim 8, further comprising a container including a buffer solution, in connection with the sample inlet.

13 (previously presented). The device according to claim 8, which comprises a series of said chambers.

14 (canceled).

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Remarks

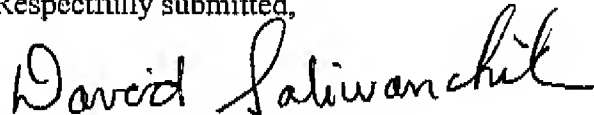
A key aspect of the subject invention is that the activity of a cell or spore can be detected.

Weimer *et al.* and Bruno *et al.* are cited for methods of detecting cells. However, both of these references will detect all cells in a sample whether dead or viable because these references do not detect the activity of the cells.

The subject invention is based largely on the realization that a cell/spore will grow/germinate when immobilized on a surface in the presence of a growth medium and that a holographic detector can detect the relatively low levels of resulting byproduct. The Lowe *et al.* reference provides no expectation of such a high sensitivity level from a holographic sensor as to be capable of detecting the relatively low levels of products that result from cell growth and/or spore germination.

I will look forward to discussing this case with you today at 10:00 a.m.

Respectfully submitted,



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